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to them, and several new species and races were discovered and described.

After several ventures in the metallurgical or mining line, maintaining an office in San Francisco with his brother for a while, and also doing some work in Plumas County, California, Kaeding was induced to go out to Korea, as metallurgist, by the Oriental Consolidated Mining Company. There he stayed for three years. After this he spent several years in charge of mining properties on the west coast of Mexico, and finally went to Nicaragua, staying there some two years. It was there that his health became affected, the climate not agreeing with him at all. He returned to the United States for treatment, but it was too late, as his heart had become involved.

On his way back to California he visited Washington, D. C., to meet some of the ornithologists there, with whom he had from time to time been in correspondence; but most unfortunately most of them were away on vacations or out on field duty, much to his regret. Mr. A. B. Howell, of Covina, California, is identified with the preparation of a work upon North American birds, and Mr. Kaeding was to have supplied him with notes that would have greatly enhanced its value.

The accuracy of Kaeding's mind is well exemplified in the "Ten-year Index to the Condor," successfully compiled by him in 1908, and brought to publication early in 1909 as Pacific Coast Avifauna Number 6.

Kaeding was a jovial comrade in the field, never afraid of hard work, a firm supporter of the Cooper Ornithological Club, and was ever dreaming of the time when he would "make his pile" and do all sorts of things for the "C. O. C." Why he should have been taken so early from our midst is one of those things no man may know. We wonder—but we must accept.

## NOTES ON THE EGGS OF THE NORTH AMERICAN LIMICOLAE, REFERRING PRINCIPALLY TO THE ACCIDENTAL VISITORS

By HERBERT MASSEY, M. B. O. U.

I WAS MUCH interested in Dr. Shufeldt's paper on the North American Limicolae in THE CONDOR for July-August, 1913, and trust that he will find time to give descriptions and plates of the eggs of the rarer Limicolae, especially of those species that figure in the B. O. U. list, of the eggs of which we have few examples in England. Of the European species given by Dr. Shufeldt, and which are almost accidental visitants to America, I think he has been hampered by having too little data to work on; and on this account I venture to enlarge upon what he has already written, thinking that it may interest some of our readers who may wish to know the extreme range of variation in the eggs of this the most interesting group of birds—the Limicolae. These notes are taken from the most extensive private collection of eggs of the Limicolae in England.

**Phalaropus (or Steganopus) tricolor.** Wilson Phalarope.

**Phalaropus fulicarius.** Red (or Gray) Phalarope.

**Phalaropus hyperboreus (or Lobipes lobatus).** Red-necked (or Northern) Phalarope.

As regards the ground color of the eggs of the three Phalaropes, I find those of *P. tricolor* to be the least variable, being mostly different shades of clay color, the pale stone color and the various shades of olive, as in the other two species,

being absent. The surface markings also do not show the same range of color, being chiefly chocolate-brown and brownish-black, while the patterns of the markings from minute specks all over the egg to great blotches are equally as variable as in the other two species. On many of the eggs of *P. fulicarius* and *P. hyperboreus*, specks and blotches of violet gray are to be found, more especially on those with the stone-colored and light-olive grounds. The bigger blotches on the eggs of all the three species are generally to be found on the large end and sometimes cover the whole of it. The eggs of *P. fulicarius* and *P. hyperboreus* have little or no gloss, while the eggs of *P. tricolor* are distinctly glossy. I think Dr. Coues is mistaken in saying that the eggs of *P. fulicarius* cannot be distinguished from those of *P. hyperboreus*. It is true that small eggs of *P. fulicarius* cannot be distinguished from large eggs of *P. hyperboreus*, but in a large series such as I have before me (19 sets or 76 eggs of the former and 50 sets or 200 eggs of the latter) the difference is easily seen. Measurements: *P. tricolor*, 1.3 x .9 in.; *P. fulicarius*, 1.25 x .85; *P. hyperboreus*, 1.15 x .82 in. Number of eggs, 4. Eggs pyriform in shape.

#### **Recurvirostridae.**

I am not able to give any description of the American forms of Stilt and Avocet, but judging from Dr. Shufeldt's figures they must very closely resemble the European forms both in size and color and markings, but would hardly fit in with Dr. Coues' description. The eggs of *Himantopus avocetta* are distinctly larger than those of *Himantopus melanopterus*, and while the markings are very similar on the eggs of both species, and in many cases the ground color also, the eggs of *H. avocetta* appear in a series to have a richer, warmer appearance. Measurements: *H. avocetta*, 2 x 1.5 in.; *H. melanopterus*, 1.7 x 1.25. Number of eggs nearly always 4 in *H. avocetta*, and 3 to 4 in *H. melanopterus*. The eggs of both species have little or no gloss. They are pyriform in shape.

#### **Scolopax rusticola.** European Woodcock.

Very few authors seem to have paid sufficient attention to the eggs of this species, probably from insufficient material. Swann's description as given by Dr. Shufeldt, "pale buff, blotched," etc., is a poor and meagre description of these beautiful eggs. The ground color ranges from the palest cream (nearly white) through deeper cream to pale buff, yellow-buff and the deepest brown-buff (many of the eggs of this latter type having a distinct pink tone), speckled and spotted and blotched with yellow-brown, dark brown and purplish gray. As a rule the eggs in the same set are fairly uniform in the pattern of the markings; but occasionally you get a set with one egg much more marked than the other three, and in many cases you find two distinct shades of ground color in the same set. The number of eggs is invariably 4. Measurements: 1.75 x 1.3 in. The eggs possess a fair amount of gloss, and are rounded ovate in shape.

#### **Scolopax (or Gallinago) gallinago.** European Snipe.

In ground color the eggs of this species show a greater variation than in any other of the Limicolae, and the series I have before me now (50 sets or 200 eggs) certainly baffles description. Swann's description, for a general one, is very misleading if not altogether wrong; and I have certainly never seen an egg of the snipe "pale yellowish with an olive tinge". Here you have the various shades of stone color, pale buff and deep buff, all shades of brown, from the very palest to the rich red (so highly prized by collectors), a deep chocolate, a beautiful pale green (very fugitive), similar to some eggs of the Dunlin and Wood Sandpiper, pale olives and dark olives, a very dark green, and a very light dove gray. The markings are very variable, spots, blotches and irregular thin streaks (chiefly at

the larger end) of varying shades of brown, from a light chestnut to nearly black, with, in many cases, spots of violet gray. The markings in some instances are fairly evenly distributed, but are as a rule chiefly at the larger end, in many cases forming a complete cap. There is a beautiful variety having all the markings at the larger end with the remainder of the egg almost without a speck, and another variety dusted over with fine specks without any large spots at all. Several of the sets show the spiral arrangement of the spots, but this is not as frequent as in the eggs of the Dunlin. The number of eggs is invariably 4. Measurements: 1.6 x 1.1 in. Some eggs show a considerable amount of gloss, though this is usually absent. The eggs are pyriform in shape.

**Tringa (or Pelidna) alpina.** Dunlin.

The eggs of this species resemble those of *G. gallinago* very closely in color, but in comparing a series (74 sets or 296 eggs) with that of *G. gallinago*, one is struck by the greater proportion of the lighter ground colors in the Dunlin, the very deep olives and the very dark browns being almost absent. On the other hand the beautiful light blue-green and the pale buff are rare in *G. gallinago*. The surface spots are chiefly two shades of brown, a rich red and a dark brown, with, in many cases, spots of violet gray. In *T. alpina* it is rare to find the two shades of brown in the same egg as is often the case with *G. gallinago*. The markings are very varied, some eggs dusted all over with tiny specks, others with specks and fair-sized spots, and again others with great blotches of color chiefly at the larger end. The pattern markings on the eggs of the same set are often very dissimilar. Many of the eggs of this species show the spiral arrangement of the spots. The eggs are very glossy, and on this account have a brighter appearance than eggs of *G. gallinago*. I have only one set entirely without gloss. Number of eggs invariably 4. Measurements: 1.35 x .95 inch. The eggs are pyriform in shape.

**Totanus melanurus (or Limosa limosa).** Black-tailed Godwit.

The eggs of this species are not very variable, olive-green and olive-brown, light buffy brown to dark brown without any trace of olive, being chiefly the ground color, while the markings are usually deeper shades of the same color with rarely a few spots of violet-gray, these spots in many cases being very indistinct; but occasionally you find a set quite boldly spotted. The eggs have little or no gloss, and in the same set are very uniform in shape. The markings on the eggs in the same set are usually very similar in character. Number of eggs 4, occasionally 5. measurements: 2.2 x 1.5 in. The eggs are pear-shaped.

**Totanus calidris (or Totanus totanus).** Common Redshank.

The ground color of the eggs of this species does not show any great range of variation, being chiefly different shades of buff, from the very light clay color (often slightly tinged with greenish-olive) to a good deep shade; but occasionally you find a set with a deep rich red-buff ground color, spotted with a rich red-brown which gives them a very handsome appearance. The markings are usually two shades of brown, a rich red and a very dark brown, from minute specks to good big blotches, the latter being often confluent forming a zone around the larger end of the egg. Again, you find a few violet-gray markings, and occasionally a thin irregular hair-line of very dark nearly black-brown, also at the larger end. The markings on the eggs of the same set often show great variation. The eggs have little or no gloss. Number of eggs in set, 4. Measurements: 1.75 x 1.2 in. Eggs pyriform in shape and generally flattened at the top.

**Totanus flavipes.** Yellowshank (or Yellow-legs).

As this is purely an American species I should not have referred to it had

not Dr. Shufeldt surmised that the eggs were similar to those of *Totanus calidris*, the Redshank. They could never be mistaken for eggs of the latter, being smaller, of a different shape, not having the flattened butt so common to *T. calidris*, and are generally richer in their markings, and have a certain style about them that is quite foreign to *T. calidris*. Also they have a very distinct glossy appearance not common to *T. calidris*. Seebohm says of this species: "The fine series of eggs of this species in the Smithsonian Institution vary in ground color from creamy white to pale greyish brown. The surface-spots are dark rich reddish brown, and vary in size from a large pea downwards, many of them becoming confluent and forming large irregular blotches, or occasionally taking the form of streaks. Most of the markings are generally on the larger end of the egg, but on some specimens they are more evenly distributed over the entire surface. The underlying markings are pale grey or greyish brown, and are large and conspicuous. The eggs vary in length from 1.7 to 1.6 inch, and in breadth from 1.2 to 1.08 inch. The eggs are 4 in number and very handsome." This description tallies with eggs I have from the Anderson River. I was somewhat surprised to see that Ridgway makes the eggs of this species larger than those of *T. melanoleucus*, the Greater Yellowshank, being 1.69 x 1.15, as against 1.43 x 1.20 for *T. melanoleucus*.

**Totanus (or Machetes) pugnax.** Ruff.

The ground color of the eggs of this species shows a fair amount of variation, from very light grey stone to drab buff, yellow buff, brown buff, and olive without any brown, and light brown without any olive. They are spotted and blotched with two shades of brown, a good mid brown and a dark chocolate, and violet gray, the dark chocolate markings being usually on the light grey stone colored eggs, and the mid browns on the buffs and olives. Of the spots and blotches many are confluent, the larger blotches being chiefly at the larger end of the egg, though a good many eggs of this species are fairly evenly marked all over. The eggs have a fair amount of gloss, and owing to the prevalence of buff and olive grounds it gives them a rich oily appearance. The eggs in each set usually show a similarity in markings. Number of eggs in set invariably 4. Measurements: 1.8 x 1.2. The eggs are pyriform in shape.

**Numenius phaeopus.** Whimbrel.

The eggs of this species are usually very handsome, though not showing any very great variation in ground color or in the color of the markings. The boldness of the spots and blotches in many cases gives them a splendid appearance. The general color is distinctly olive of varied shades, olive green and olive brown, speckled, spotted and blotched by light and dark shades of the same color and rich brown, curious almost black thin streaks at the larger end of the egg being very common, usually only on one egg in the set, though I have one set with every egg so marked. The violet-gray markings are not so conspicuous; but I have one set with great blotches of this color so deep in tone as to have quite a purple appearance. The markings are often fairly distributed over the surface of the egg, and the eggs in each set even in markings, but in many instances the spots and blotches are on the larger end of the egg. Sometimes the markings are very indistinct and give the egg a blurred appearance. The eggs are flattened at the top. Number of eggs 4, though I have one set of 5 all apparently the product of one bird, as all the eggs are of a peculiar shape, being much narrower and consequently look more elongated. Measurements: 2.4 x 1.55 inches. The eggs have very little gloss and are pyriform in shape.

**Vanellus cristatus** (or **Vanellus vanellus**). Lapwing.

The general ground colors of the eggs of this species are clay of various depths and buffish olive with very black brown markings; but among the eggs of this species there are some wonderful modifications, varying greatly both in color and markings and very difficult to describe. There is the palest grey stone color with very tiny black specks sparingly distributed; a deeper stone color similarly spotted but with a blotch at the butt end; another with a buffish olive ground color so completely dusted over with the tiniest specks of chocolate brown as to almost obscure the ground color; a warm buff fairly evenly spotted with black brown and smeared over with a yellow ochre color; another, greenish olive ground, with markings of blackish brown around the larger end of the egg and with a band of lighter ground color about one-fourth inch from the apex; a lovely deep olive green with enormous blotches of black interspersed with streaks all over the egg; a net brown ground with smallest markings of black brown; and rarely a fine red with darker markings of the same color, a color so absolutely unlike anything that we would expect in eggs of this species as to make one doubt its identity though I know of four sets of this variety in different collections. Generally the markings on the four eggs of a set show a great similarity to each other, but often there is one egg in a set totally distinct both in ground color and markings. Owing to the black brown markings, the general appearance of a series of these eggs (leaving out the varieties) is a sombre one. The eggs have no gloss. Number of eggs in set 4. Measurements: 1.87 x 1.34 inches.

**Charadrius dominicus**. American Golden Plover.

Surely Dr. Shufeldt is in error when he says the eggs of this species are always much lighter in ground color and larger than those of *Vanellus cristatus*. Taking the ground color, I have never seen or heard of any eggs of *C. dominicus* as light in ground color as those of *V. cristatus* described previously, nor do the average measurements show that they are larger; indeed I have a set of *C. dominicus* taken by Macfarlane in which the actual measurements, 1.8 x 1.35, are much smaller than a great many sets I have of *V. cristatus*. Owing to the reddish buff ground color of the eggs of *C. dominicus* they appear to be brighter and handsomer eggs.

**Charadrius pluvialis** (or **C. apricarius**). European Golden Plover.

Although this is not an American species the eggs are so beautiful that I venture to give a description of some of them. These eggs are considerably larger and more richly colored than the eggs of either *C. dominicus* or *V. cristatus*. The description given by Dr. Shufeldt is much more applicable to the eggs of this species than to those of *C. dominicus*, and the measurements he gives, 2.07 x 1.40 (Ridgway), are Ridgway's measurements for *C. pluvialis* (or *apricarius*) and not for *C. dominicus*. The ground color varies considerably, very pale buff, mid buff, olive buff, light olive and mid olive, and a rich deep reddish brown buff, spotted and blotched with blackish brown and red brown, the two shades often appearing on the same egg, either separately in spots, or the lighter brown on the top of the darker, giving a very rich appearance to the eggs. The underlying markings are usually few in number, never very large and of a darkish gray. On many of the eggs the markings are small and are evenly distributed, on others the spots and blotches are large, often confluent, and covering most of the surface of the egg, but chiefly the heavy markings are massed at the large end, sometimes forming a zone and at other times a cap. The eggs have in some instances a little gloss. Number of eggs invariably 4. Measurements: 2.07 x 1.4 inch. The eggs are pyriform in shape.

**Haematopus ostralegus.** Oystercatcher.

The eggs of this species vary in ground color from very light stone grey, cream, clay, light buff, medium buff and dark buff, to a good dark brown, spotted, blotched and streaked with blackish brown, occasionally medium brown, and exceptionally a very light yellow brown, and always with underlying markings of gray. Many eggs are finely streaked without any spots, while others have streaks and blotches combined, and large blotches of gray; others again have medium sized spots evenly distributed. The gray on these eggs is not the usual violet gray common to the Limicolae, but a deeper blue-black gray, similar to the color left by a blot of ink on white blotting paper. I know of no other eggs of the Limicolae that have this same shade of gray. The eggs have little gloss. The number of eggs is normally 3 but I have several times found sets of 4, and have heard of many others. These eggs vary greatly in size, from  $2.55 \times 1.75$  to  $2.10 \times 1.50$  inches; average measurements:  $2.2 \times 1.50$ . Eggs ovate in shape.

I have noticed that Ridgway, say in the phalaropes, gives 3 to 4 as the normal set of eggs, and also in other species. Surely it is common knowledge that the bulk of the Limicolae lay 4 eggs, and it would have been far better to have given the names of those species that normally lay less than this number, than to generalize as he does in his introduction to the Scolopacidae—eggs 2-4.

## SOME FURTHER NOTES ON SIERRAN FIELD-WORK

By MILTON S. RAY

WITH FOUR PHOTOGRAPHS BY OLUF J. HEINEMANN

**I**T WAS on the ninth of June, 1910, that Mr. Henry W. Carriger and the writer gained the Forni Meadow at the base of Pyramid Peak. Inasmuch as Messrs. Barlow and Atkinson, exactly ten years before, investigated the avian possibilities of this region, a comparison of the joint findings may prove of interest. Our predecessors recorded twenty-five species of which we located all but three, the Hermit Warbler, Western Warbling Vireo and Pigmy Nuthatch. Carriger and I listed 36 species, and to an earlier summer and ever shifting distribution during migration, I attribute the cause of this more extended list.

Mr. Barlow records two nests of the Mountain Chickadee, one newly built, and one with eight fresh eggs. We also found a number of the nests of this species, but they all held small young. As Mr. Barlow records his *Tachycineta* with a question mark I may state all we noted were *T. bicolor*. Like Barlow we found no Sierra Grouse at Forni's above 6000 feet, but in similar country, northwest of Phillips' Station on June 12 we encountered a pair at an altitude of 8,500 feet.

Mr. Barlow, speaking of the White-crowned Sparrow, says\*: "On June 10 these sparrows were evidently waiting for nest building which was impracticable until the bushes should become in leaf." I may add in this connection that of about twenty nests of this bird that I have found at various altitudes in the high Sierras three-fourths have been placed on the ground and the balance in the thick evergreen lodgepole pine saplings. Of the ground-nests many were not dependent on foliage for concealment, being hidden by dead branches or concealed at the

\* Condor, II, 1900, p. 107.